

REMARKS

Claims 1-12 are all the claims pending in the application.

Reconsideration and review on the merits are respectfully requested.

Drawings

The Examiner has objected to the drawings under 37 CFR 1.83(a) because the drawings allegedly do not show every feature of the invention specified in the claims. The Examiner states that means for heating (Claim 2), means for vibrating (Claim 3), a band heater (Claim 11), and an air cylinder (Claim 12) must be shown or the feature(s) canceled from the claim(s).

Applicants respond as follows.

Applicants submit a Request for Approval of Proposed Drawing Corrections concurrently herewith and provide corrected drawings showing the means for heating (a band heater) in Fig. 1B and the means for vibrating (an air cylinder) in Fig. 1C. The conventional features of a band heater and an air cylinder are illustrated in the drawings in the form of labeled rectangular boxes as their detailed illustrations are not essential for a proper understanding of the invention, in accordance with 37 C.F.R. § 1.83. Accordingly, Applicants respectfully request withdrawal of the objections to the drawings.

Claim Rejections - 35 USC § 112

Claim 5 has been rejected under 35 U.S.C. 112. first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled

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in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In the Office Action, the Examiner states that in “Line 11, the claim amended by adding the type of releasing the layer by curling it with the release member, the specification (from page 7 and thereafter, as mentioned in applicant’s remarks) does not clearly show the specific type of curling process beside the releasing process. Further, it is inherent that the layer is curl/peel off the roll when the layer is being released by the release member.”

Claim 11 has been rejected under 35 U.S.C. 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner states that the specification does not support “a band heater”, the specification only discloses an electric heater (page 10, line 21).

Applicants respond as follows.

Regarding the rejection to Claim 5 (the layer is curled/peeled off the roll), Applicants traverse the Examiner’s rejection of Claim 5 by pointing to Fig. 1 which clearly shows that a plastic material sheet layer of said laminated sheet is released from said holding roller by curling it with said release member. Furthermore, Applicants submit that the curling process is deliberately created by the Applicants to support certain unexpected benefits in production such as a smoother tackiness surface without generating the projections and depressions on the surface of the pressure-sensitive adhesive.

Regarding the rejection to Claim 11 (the use of the band heater), Applicants traverse the rejection by pointing out that Example 2 at page 12, lines 12 to 13 of the specification as originally filed supports the use of the band heater.

For the foregoing reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 112.

Claim Rejections - 35 USC § 102

Claims 1, 3, 5, 7 and 9 have been rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Masayuki et al. (JP 363158156A) for the reasons stated in the previous Office action and the discussion under 35 U.S.C. 112, first paragraph above regarding the limitation “by curling it”.

Applicants respond as follows.

In order to more clearly claim their invention, Applicants amend Claims 1 and 5 which more clearly establish distinctions over Masayuki et al. Claims 1 and 5 recite the description that a set of calender rollers comprises at least three rolling rollers and one feed roller, wherein a nip portion is formed with a pair of nip rollers including a holding roller for holding said rolled plastic material sheet, and behind said nip portion of a center roller, a release member for releasing a laminated plastic material sheet from the holding roller is arranged in proximity to or in contact with the holding roller, and the feed roller for providing a releasing force to the laminated plastic material sheet is arranged at the position lower than the position of the nip portion. Support for the rolling rollers is clear from Fig. 1, elements 1, 2, 3 and 4, in the

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specification as originally filed. Support for the feed roller and its location can be found, for example, in the description of the non-tacky roller on page 10, line 6, and Fig. 1, reference number 22, in the specification as originally filed. Support for the center roller can be found, for example, at page 9, line 1 and element 3 of Fig. 1 of the specification as originally filed. No new matter has been added. Entry of the amendment is respectfully requested.

In Claim 5, Applicants have also amended the method claim to more clearly state the process that when laminating the plastic material sheet onto a base material sheet at the nip portion, the resulting laminated sheet remains held on the holding roller due to the tackiness of the plastic material to the position of the release member, and thereafter the plastic material sheet layer of the laminated sheet is released from the holding roller by curling it toward the direction of the feed roller with the release member. Support can be found in the last paragraph bridging pages 9 and 10 and Fig. 1 of the specification as originally filed. No new matter has been added. Entry of the amendment is respectfully requested.

Regarding Claim 1, Masayuki et al does not anticipate at least the description that a set of calender rollers comprises at least three rolling rollers and one feed roller, wherein a nip portion is formed with a pair of nip rollers including a holding roller for holding said rolled plastic material sheet, and behind said nip portion of a center roller, a release member for releasing a laminated plastic material sheet from the holding roller is arranged in proximity to or in contact with the holding roller, and the feed roller for providing a releasing force to the laminated plastic material sheet is arranged at the position lower than the position of the nip portion.

Regarding Claim 5, Masayuki et al does not anticipate at least the process that when laminating the plastic material sheet onto a base material sheet at the nip portion, the resulting laminated sheet remains held on the holding roller due to the tackiness of the plastic material to the position of the release member, and thereafter the plastic material sheet layer of the laminated sheet is released from the holding roller by curling it toward the direction of the feed roller with the release member.

Furthermore, Applicants previously remarked on Masayuki et al in our response to the prior office action which Applicants incorporate by reference herein. As can be seen from Masayuki's Figs. 1 to 3, the doctor knife 14 (and 8) is disposed at a nip portion such that it is inserted deeply. Applicants respectfully submit that the above constitution is also apparent from the description on page 2, lower right-hand column, lines 13 to 17, that is, "A doctor knife 8 is disposed such that an edge of a blade thereof is inserted into a gap 9; an end of the edge of the blade is installed in contact with the circumferential surface of the first rolling roller 3 at the vicinity on the line connecting revolving centers of the first and second rolling rollers 3, 4 as shown in Fig. 2". (emphasis added). Further, Applicants respectfully submit that Masayuki et al describes on page 3, lower left-hand column, line 16 to lower right-hand column, line 5 (as translated from Japanese to English) that "the pressure-sensitive adhesive is transferred to the second rolling roller 4 while being made even, when it comes into slide-contact with the lower surface of edge of the doctor knife". Namely, Masayuki et al describes that the doctor knife comes into contact with the pressure-sensitive adhesive in such a manner that the pressure-sensitive adhesive is made even by the lower surface of the edge of the doctor knife. A support

coated with the pressure-sensitive adhesive is illustrated such that the support is released in the direction of the tangential line of the periphery of the roller and is, therefore, hardly curled.

Although the Examiner concludes that if the knife is disposed “at the nip portion”, the knife would simply jam, Applicants respectfully submit that, after taking the above description of Masayuki et al into consideration, the knife in Masayuki is, in fact, inserted and disposed at the vicinity of the nip portion whereas, on the other hand, a release member (e.g., a doctor knife) of calendar rollers according to the present invention is disposed behind a nip portion of a center roller.

When the laminate is released in Masayuki et al, the knife makes the surface of the pressure-sensitive adhesive layer even at the lower surface of the edge of the blade of the knife, by which craters created when releasing the layer from the rolling roller are made even to form a uniform surface. However, when the doctor knife is disposed such that the surface of the doctor knife comes into contact with the pressure-sensitive adhesive, although a large cavity such as the crater may be made even, the surface is still made rough to decrease the surface smoothness. However, in the present invention, the doctor knife is disposed such that the doctor knife surface comes into contact with the pressure-sensitive adhesive as linearly as possible, and the laminate sheet is released by being curled downward from the tangential line direction of a holding roller, by which a pressure-sensitive sheet excellent in surface smoothness can be formed without generating projections and depressions on the surface of the pressure-sensitive adhesive.

For the foregoing reasons, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 102(b).

Claim Rejections - 35 USC §103

Claim 10 has been rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Masayuki et al. for the reasons discussed in a previous Office action.

Claims 2, 6, and 11 have been rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Masayuki in view of Borgstrom (USPN 6,325,878). With regard to a band heater (claim 11), the Examiner states that it would have been an obvious matter of design choice to have the band heater as the heating means, since Applicants have not disclosed that the band heater solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with Borgstrom's heating means.

Claims 4, 8, and 12 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Masayuki in view of Gerhardt (USPN 5,601,868). With regard to a specific type of vibrating means (claim 12), the Examiner states that the use of an air cylinder is an obvious matter of design choice. The Examiner also asserts that Masayuki also discloses means for vibrating (15) such as an air cylinder, so that the tip of the doctor knife is apart from the outer surface of the rolls (3, 4).

Applicants respectfully traverse the rejections under 35 U.S.C. § 103(a) as follows.

Based on the foregoing reasons that Applicants have given for the removal of Masayuki et al as a prior art reference for the anticipation rejections, Applicants submit the combination of Masayuki et al with secondary references fails to render Applicants' claimed invention unpatentable under 35 U.S.C. § 103(a). The dependent claims are patentable for at least the

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same reasons as set forth above covering Claims 1 and 5. Neither the reference to Borgstrom nor to Gerhardt overcomes the deficiencies of Masayuki et al in light of newly amended Claims 1 and 5.

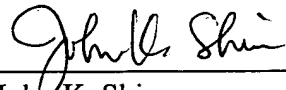
Accordingly, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



John K. Shin
Registration No. 48,409

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please replace the following paragraph on page 4, after the title heading “**Brief Description of the Drawings**” beginning at line 15 and ending on line 17, before the paragraph describing Fig. 2.:

Fig. 1A is a view illustrating calendar rollers provided with a doctor knife disposed behind a nip portion of a center roller (holding roller) for holding a plastic material sheet. Fig. 1B illustrates a means for heating a release member with a band heater, indicated by reference number 42, attached to a doctor knife, indicated by reference number 41. Fig. 1C illustrates a means for vibrating a release member with an air cylinder, indicated by reference number 43, attached to a doctor knife, indicated by reference number 41.

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) A set of calendar rollers comprising at least three rolling rollers and one feed roller, for rolling a plastic material into a plastic material sheet and for laminating said plastic material sheet onto a base material sheet at a nip portion to be formed into a laminated plastic material sheet, wherein

said nip portion is formed with a pair of nip rollers including a holding roller for holding said rolled plastic material sheet, and behind said nip portion of a center roller, a release member

for releasing said laminated plastic material sheet from said holding roller is arranged in proximity to or in contact with said holding roller, and the feed roller for providing a releasing force to the laminated plastic material sheet is arranged at the position lower than the position of the nip portion.

5. (Twice Amended) A method for producing a laminated sheet by laminating a plastic material sheet on a base material sheet using a set of calender rollers, comprising

providing said set of calender rollers which comprises at least three rolling rollers and one feed roller, a nip portion is formed with a pair of nip rollers including a holding roller for holding a rolled plastic material sheet, and behind said nip portion of a center roller, a release member is arranged in proximity to or in contact with said holding roller, and the feed roller is arranged at the position lower than the position of the nip portion, and

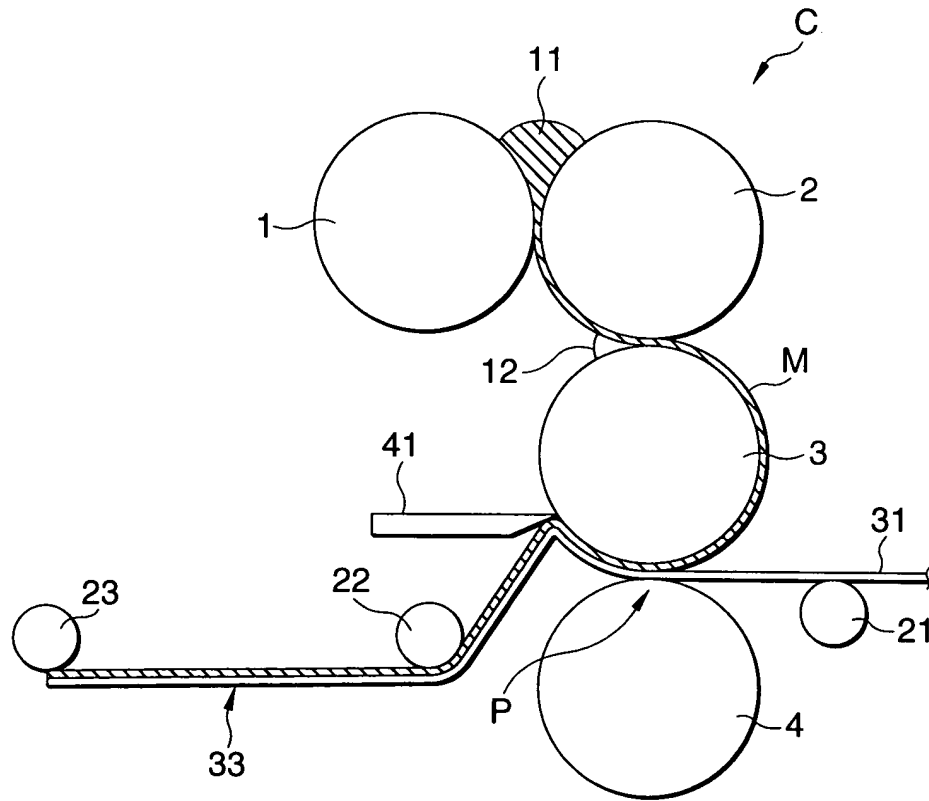
rolling a plastic material into said plastic material sheet, then

laminating said plastic material sheet onto a base material sheet at said nip portion, the resulting laminated sheet remains held on the holding roller due to the tackiness of the plastic material to the position of the release member, and thereafter

releasing the plastic material sheet layer of said laminated sheet from said holding roller by curling it toward the direction of the feed roller with said release member.



FIG. 1A



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FIG. 1C

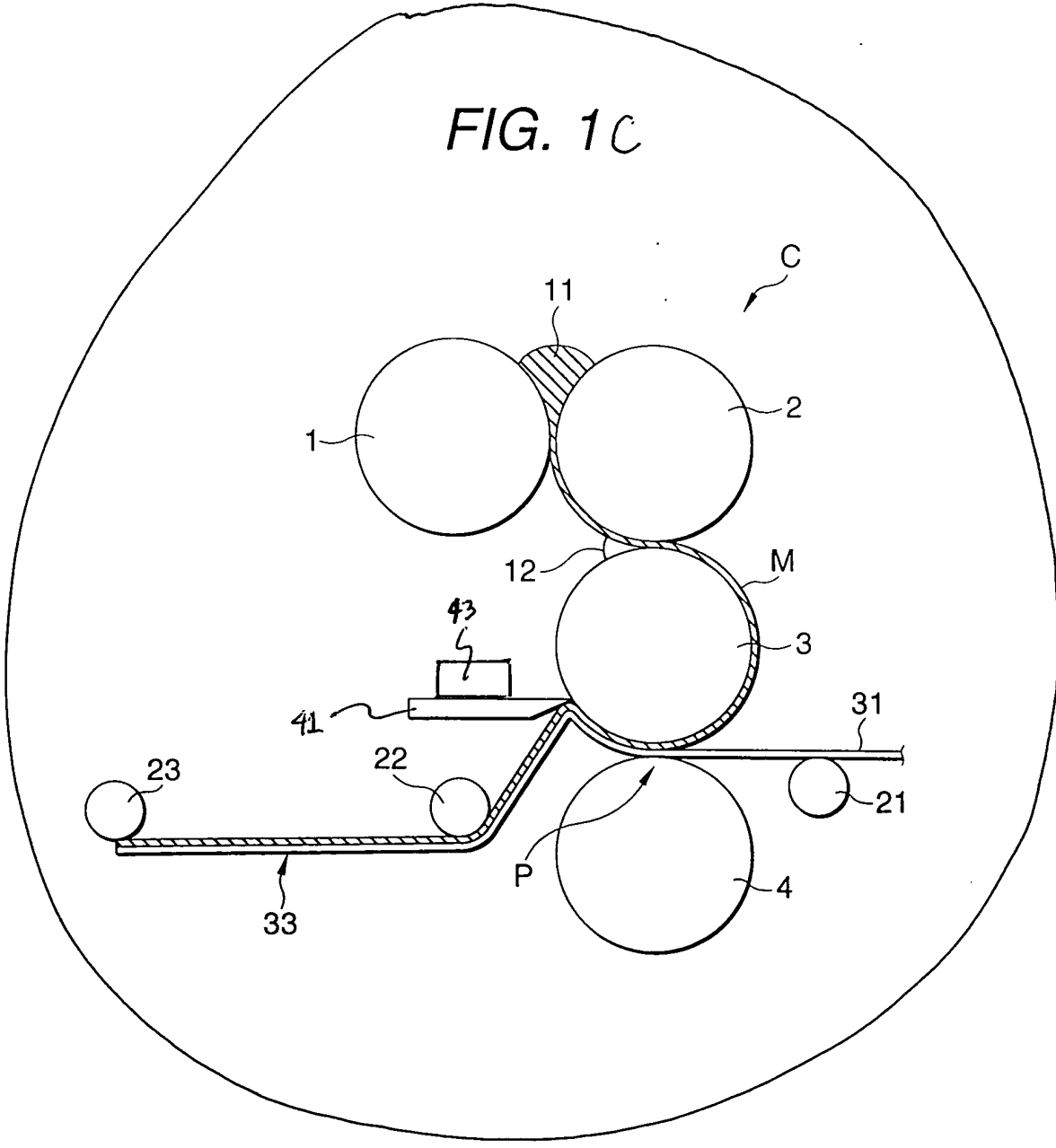


FIG. 1B

